CONTENTS

JANUARY VOLUME 69, NUMBER 1 1989

CONTENTS

General Papers

V. S. Lutovinov and O. E. Molodykh — 1 The influence of electron–electron interaction on the temperature dependence of the magnon damping in disordered ferromagnetic metals

T. Tsuzuki — 7 On the dynamics of a two-state system coupled to a bosonic bath

M. Lagos — 11 Non-Condon contributions to the diffusion of hydrogen in solid solutions

---

Superconductors and Superconductivity

J. Chadwick, G. R. Court and D. H. Jones — 19 Magnetic measurements on high-T_c superconductors

P. Vašek, L. Smrčka, J. Dominec, M. Pešek, O. Smrčková and D. Sýkorová — 23 Gamma irradiation of $YBa_2Cu_3O_{7-x}$ ceramics

P. A. P. Lindberg, Z.-X. Shen, J. Hwang, C. K. Shih, I. Lindau, W. E. Spicer, D. B. Mitzi and A. Kapitulnik — 27 Electronic structure of the $La_{1+x}Ba_{2-x}Cu_3O_{7+\delta}$ system studied by photoelectron spectroscopy

---

General Papers (contd)

K. Suzuki, J. Watanabe, A. Takeuchi, Y. Uehara and S. Ushioda — 35 Two-mode radiation from light-emitting tunnel junctions with surface roughness

T. Tomov, H. Engelmann, I. Dézsi and U. Gonser — 41 Investigation of the ferroelectric phase transition in $LiNbO_3$:Fe by Mössbauer spectroscopy

M. Nikl — 45 Energy transfer in $PbCl_2:Sn^{2+}$ single crystals at low temperatures

C. Paracchini and V. Dallacasa — 49 Impact ionization current in semi-insulating GaAs

W. Ungier — 53 Electron–hole exchange interaction in a biexciton molecule

S. K. Misra and S. Jerzak — 57 Mn^{2+} EPR study of phase transitions in dicalcium barium propionate $Ca_2Ba(C_2H_5COO)_6$

K. Fujiwara, N. Tsukada, T. Nakayama and T. Nishino — 63 Linear polarization effects on photoluminescence properties of GaAs/AlAs quantum well heterostructures

F. Rodríguez, M. Moreno, J. M. Dance and A. Tressaud — 67 Temperature dependence of crystal-field peaks of $RbMnF_3$ and $KMnF_3$

K. Beck, U. Bogner and M. Maier — 73 Heat-pulse propagation in polymers detected by selectively laser-excited dye molecules

K. M. Hong — 79 Scattering of electrons by a rough surface

C. Meyer, J. P. Gavigan, G. Czjzek and H.-J. Bornemann — 83 A study of crystal fields in $Yb_2Fe_{14}B$ by ^{174}Yb Mössbauer spectroscopy

J. W. Krewer and R. Feder — 87 Non-spherical potentials in relativistic multiple scattering theory

T. Kaneyoshi — 91 On the magnetic behavior of amorphous spinel ferrites

W. Kleemann and F. J. Schäfer — 95 Single-to-multiaxis antiferromagnetic phase transition in α-MnS?

P. Saalfrank, P. Otto and J. Ladik — 99 *Ab initio* Hartree–Fock band structures of different lead surfaces using effective potentials

M. Bleher and W. Wonneberger — 103 Self consistent collective mode response and pinning frequencies in charge density wave systems

S. N. Kumar — 107 Effective medium treatment of multicomponent metal–dielectric systems

S. P. McAlister, M. Olivier and T. Siegrist — 113 Magnetic and electrical properties of UCu_2Ge_2

K. Solomon Harshavardhan and M. S. Hegde — 117 On photooxidation of Ge in obliquely deposited Ge and $Ge_{25}X_{75}$(X = S, Se, Te) thin films

i Instructions for Authors on the Preparation of Camera-Ready Manuscripts for *Solid State Communications*

A cumulative Author Index appears in Numbers 4, 8 and 12 of each Volume

JANUARY VOLUME 69, NUMBER 2 1989

CONTENTS

General Papers

B. Dorner, I. T. Belash, E. L. Bokhenkov, E. G. Ponyatovsky, V. E. Antonov and L. N. Pronina — 121 Inelastic incoherent neutron scattering spectra from fcc $NiH_{1.05}$, hcp $CrH_{1.0}$ and hcp $MoH_{1.2}$ at 15K

A. J. Rostocki and R. Wiśniewski — 125 An effect of pressure forced transition from ferro- to nonferromagnetic state in amorphous alloy $Fe_{60}Mn_{20}B_{20}$

Wang Xue-mei, Lu Li, Duan Hong-min, B. J. Jin and Zhang Dian-lin — 127 Peierls transition study of $K_{0.3}MoO_3$ by the measurements of the pressure dependence of resistivity and thermopower

M. R. Ibarra, C. Marquina, P. A. Algarabel, J. I. Arnaudas and A. del Moral — 131 A. C. initial magnetic susceptibility and spin reorientation transitions in $(Er_xR_{1-x})_2Fe_{14}B$ magnets (R = Nd and Dy)

A. Anastassiadou, E. Liarokapis and E. Anastassakis — 137 A Raman study of $Zn_{1-x}Mn_xS$ mixed crystals

K. Yoshino, Y. Manda, K. Sawada, M. Onoda and R. Sugimoto — 143 Anomalous dependences of luminescence of poly(3-alkylthiophene) on temperature and alkyl chain length

W. Blau, R. Dudde and H. Petersen — 147 Photoyield measurements of the boron K-edge fine structure of amorphous $Fe_{80}B_{20}$ alloys

A. Tempel and A. Zehe — 151 Strain field and angular misalignment in pseudomorphic epitaxial systems with Si (1 1 1) substrates

Luo Ningsheng, Xu Wenlan and S. C. Shen — 155 Embedded atom method for the phonon frequencies of copper in off-symmetry directions

A. Uddin, H. Nakata and E. Otsuka — 159 High density hot excitons in stressed pure silicon

D. Wolverson and R. T. Phillips — 163 Time-resolved photoluminescence in amorphous P_2Se

P. Monachesi, P. Giannozzi and M. Acquarone — 167 Relationship between electronic conduction states and indirect magnetic exchange

H. Schweitzer and G. Czycholl — 171 Second order U-perturbation approach to the Anderson lattice model in high dimensions

Superconductors and Superconductivity

Sui-Geng Jin, Lin-Gmei Liu, Zheng-Zhong Zhu and Yun-Lian Huang — 179 Water reaction of superconducting $YBa_2Cu_3O_7$ at 0°C and its protection from water corrosion at 100°C

W. Herkert, H.-W. Neumueller and M. Wilhelm — 183 Preparation and magnetic properties of high T_c(110 K) Bi – Sr – Ca – Cu-oxide superconductors

Jing Zhao, K.-H. Dahmen, H. O. Marcy, L. M. Tonge, B. W. Wessels, T. J. Marks and C. R. Kannewurf — 187 Low pressure organometallic chemical vapor deposition of high-T_c superconducting $YBa_2Cu_3O_{7-\delta}$ films

A. Winiarski, A. Winiarska and A. Chełkowski — 191 X-ray diffraction and resistivity studies of $REBa_2Cu_3O_{o+x}$ (RE — Y or rare earth metal)

Y. Tanaka and M. Tsukada — 195 Many-band theory of superconductivity in the Kronig – Penny model based on rigorous Green's function

A cumulative Author Index appears in Numbers 4, 8 and 12 of each Volume

JANUARY VOLUME 69, NUMBER 3 1989

CONTENTS

General Papers

Yang Zhen and Cheng Yu-fen — 201 Neutron diffraction intensity enhancement of α-$LiIO_3$ single crystal under DC voltage at elevated temperatures

B. P. Zakharchenya, P. S. Kop'ev, D. N. Mirlin, D. G. Polakov, I. I. Reshina, V. F. Sapega and A. A. Sirenko — 203 Optical alignment of 2D-electron momenta in multiple quantum well structures

Superconductors and Superconductivity

M. Krantz, H. J. Rosen, R. M. Macfarlane, W. Y. Lee, V. Y. Lee and R. Savoy — 209 Raman microprobe study of a superconducting (T_c = 120K) $Tl_2Ca_2Ba_2Cu_3O_{10}$ thin film

A. K. Rajarajan, K. V. Gopalakrishnan, R. Vijayaraghavan and L. C. Gupta — 213 Nuclear magnetic resonance studies of thallium in a superconducting phase of the Tl – Ba – Ca – Cu – O system

C. Y. Fong, M. S. Wartak and R. N. Shelton — 219 The effect of structural difference on critical temperature in $La_{2-x}Ba_xCuO_4$ and $YBa_2Cu_3O_{7-x}$

Z. Hiroi, M. Takano and Y. Bando — 223 Oxygen ordering model describing the two-phase microstructures in $YBa_2Cu_3O_{6+c}$

D. M. Eagles 229 Concentrations and mobilities of holes and electrons in a crystal of a 90K oxide superconductor from analysis of *ab*-plane resistivity and Hall data

P. Prieto, G. Zorn, R. R. Arons, S. Thierfeldt, M. E. Gomez, B. Kabius, W. Sybertz and K. Urban 235 Formation of highly textured Bi – Sr – Ca – Cu – O superconducting thick films by a rapid melting process

Y. H. Huo and J. Yan 241 The response of unbiased bridge of YBaCuO superconducting bulk to microwave radiation

H. Feil 245 Intervalence charge transfer transitions in superconductors and related compounds

G. Linker, X. X. Xi, O. Meyer, Q. Li and J. Geerk 249 Control of growth direction of epitaxial YBaCuO thin films on $SrTiO_3$-substrates

R. Fazio, G. Falci and G. Giaquinta 255 Phase dependent renormalization in granular superconductors

L. B. Kiss 259 A (high T_c) superconductor sample arrangement of bistable nature

C. J. Howard, R. J. Nelmes and C. Vettier 261 A neutron powder diffraction study of the effect of pressure on the crystal structure of La_2CuO_4

General Papers (cont)

R. Jakubas 267 A new ferroelectric compound: $(CH_3NH_3)_5Bi_2Br_{11}$

S. Palchoudhuri and G. K. Bichile 271 Dielectric and electrical conductivity studies in β-PbF_2

J. S. Baijal, D. Kothari, S. Phanjoubam and C. Prakash 277 Hyperfine interaction and cation distribution of the system $Ni_{1+x}Sn_xFe_{2-2x}O_4$

J. T. Lopez Navarrete and G. Zerbi 281 Charge localisation in doped segmented polyacetylene

G. Haley, J. G. Mullen and J. M. Honig 285 First order change in hyperfine interaction at the Verwey transition in magnetite

H. Braeter, N. M. Plakida and W. Windsch 289 On the pressure dependence of the phase transition temperature in hydrogen-bonded ferroelectrics

J. S. Lee, N. Miura and Y. Iwasa 293 Magnetic field effect on the Stokes shift in *p*-type modulation-doped quantum wells

A. Kabasi and D. Chattopadhyay 297 Alloy scattering and electronic transport in InGaAs/InP single quantum wells

K. N. Shrivastava 301 The phonon-fracton crossover from the spin-lattice relaxation of Fe^{3+} in frozen solutions of metmyoglobin azide

C. Pennetta 305 A total-energy study of proton diffusion in crystalline silicon

J. Leng, Y. Qian, P. Chen and A. Madhukar 311 Disorder activated optical modes and the phonon dispersion of $Al_xGa_{1-x}As$ lattice vibration

F. Cannata, L. Ferrari and G. Russo 317 Correlation energy in double polarons from factorization of centre of mass and relative motion

N. C. Constantinou and M. G. Cottam 321 Theory of Raman scattering from plasmon-polaritons in a superlattice of alternating layered electron gases

S. K. Misra and S. Jerzak 325 Mn^{2+} EPR study of phase transitions in dicalcium strontium propionate $Ca_2Sr(C_2H_5COO)_6$

M. Seidl and M. Maier 333 Relaxation of the $a^1\Delta_g$ state of solid γ and β natural O_2 and $^{18}O_2$

K. Mazuruk, M. Benzaquen and D. Walsh 337 Coulomb gap and screening in impurity bands

i Corrigenda

ii Errata

A cumulative Author Index appears in Numbers 4, 8 and 12 of each Volume

JANUARY VOLUME 69, NUMBER 4 1989

CONTENTS

General Papers

R. Plumier and M. Sougi 341 Magnetic ordering in the normal spinel $Cu_{0.5}In_{0.5}Cr_2Se_4$

U. Caldiño G., C. de la Cruz, G. Muñoz H. and J. Rubio O. 347 $Ce^{3+} \rightarrow Eu^{2+}$ energy transfer in CaF_2

Superconductors and Superconductivity

R. Decca, E. Osquiguil, F. de la Cruz, C. D'Ovidio, M. T. Malachevski and D. Esparza 355 Non linear temperature dependence of the resistivity of La – Sr – Cu – O: effects of Sr content

P. Echegut, F. Gervais, K. Dembinsky, M. Gervais and P. Odier 359 Polar phonon modes in $YBa_2Cu_3O_{6.4}$ by infrared reflectivity spectroscopy

W. Markowitsch, W. Lang, N. S. Sariciftci and G. Leising 363 Plasma reflection of polycrystalline $YBa_2Cu_3O_{7-x}$

S. D. Murphy, K. Renouard, R. Crittenden and S. M. Bhagat 367 AC susceptibility of sintered high T_c superconductors — Bean's model and shielding current

N. Yu Boldyrev, V. M. Burlakov, A. I. Golovashkin, Yu. A. Khadzhiiskii, K. V. Kraiskaya, S. I. Krasnosvobodtsev, I. V. Lerner, A. G. Mit'ko, E. V. Pechen and G. N. Zhizhin 373 Spectroscopy of energy gap in ceramics and oriented films of $YBa_2Cu_3O_7$ in the regime of negative light fluxes

Chan-Soo Jee, A. Kebede, D. Nichols, J. E. Crow, T. Mihalisin, G. H. Myer, I. Perez, R. E. Salomon and P. Schlottmann 379 Depression of superconductivity, heavy fermion behavior and valence fluctuations in $Y_{1-x}Pr_xBa_2Cu_3O_7$

N. I. Agladze, M. N. Popova and E. P. Hlybov 385 Optical spectra of high T_c superconductor Er – Ba – Cu – O in the region of $^4I_{15/2} - {}^4I_{13/2}$ transition in Er^{3+} ion

S. L. Bud'ko, A. G. Gapotchenko and E. S. Itskevich 387 Effect of pressure on critical fields and T_c of $La_{1.8}Sr_{0.2}CuO_4$ and $YBa_2Cu_3O_7$ high-T_c ceramics

General Papers (contd)

V. I. Yukalov 393 Mössbauer-effect probability for heterogeneous matters

G. Eliasson, P. Hawrylak, X. Zhu, X. Xia and J. J. Quinn 397 Bulk and surface collective excitations of electron hole plasma in semiconductor superlattices with zero valence band offset

U. Mizutani, M. Hasegawa and S. Ohashi 403 Enhanced itinerant paramagnetism in C14-type Laves $Ti(Cu_{1-x}Al_x)_2$ $(0.45 \leqslant x \leqslant 0.70)$ alloys

V. K. Jain and V. S. Yadav 407 Estimation of T_1 for Co^{2+} ions from temperature variation of the EPR linewidths for Mn^{2+} in $Na_2Co(SO_4)_2 \cdot 4H_2O$ single crystals

U. V. Desnica — 411 Factors influencing site selection of dopants in binary semiconductors

K. Kanoda, T. Takahashi, K. Kikuchi, K. Saito, Y. Honda, I. Ikemoto, K. Kobayashi, K. Murata and H. Anzai — 415 Anomalous spin dynamics of conduction electrons in the organic conductor, [dimethyl(ethylenedithio)diselenadithiafulvalene]$_2$AuBr$_2$[(DMET)$_2$AuBr$_2$]

E. Pehlke and W. Schattke — 419 Calculation of photoemission spectra for the layered crystal 1*T*-titanium diselenide

H. Yamamoto, K. Seki, T. Enoki and H. Inokuchi — 425 Ultraviolet photoemission spectroscopy of ternary graphite intercalation compound C_8KH_x

Y. Nakaoka and T. Higashimura — 431 Energy competition of self-trapped excitons in alkali halides

M. Saint Jean, C. Rigaux, J. Blinowski, G. Furdin, E. McRae and J. F. Mareche — 435 Frequency dependence of the *c*-axis conductivity in C_8AsF_5

V. Contini, C. Presilla and F. Sacchetti — 439 On the temperature dependence of the LVV Auger spectrum in vanadium

A. A. S. Sangachin and J. Shanker — 443 Analysis of compression for cuprous, silver and thallous halides

i Author Index Nos 1 – 4

A cumulative Author Index appears in Numbers 4, 8 and 12 of each Volume

FEBRUARY VOLUME 69, NUMBER 5 1989

CONTENTS

General Papers

I. Kokanović, B. Leontić and J. Lukatela — 447 Evidence for electron – electron interaction and localization effects in the magnetic susceptibility of hydrogen-doped Zr – Ni metallic glass

D. Scalbert, J. Cernogora, A. Mauger, C. Benoit à la Guillaume and A. Mycielski — 453 Resonant Raman scattering on low energy excited states of Fe^{++} in $Cd_{1-x}Fe_xSe$

A. Borghesi, M. Geddo, G. Guizzetti, S. Pizzini, D. Narducci, A. Sandrinelli and G. Zachmann — 457 Infrared microcharacterization of grain boundaries in polycrystalline silicon

G. A. R. Lima, M. R. Sardela Jr., A. Fazzio and R. Mota — 461 The Cr^{2+} luminescence in GaAs as a function of hydrostatic pressure

E. K. Hlil, M. H. Tuilier, R. Riedinger, B. Lloret, B. Chevalier, B. Buffat and J. Etourneau — 465 Cerium valence and physical properties of $Ce(Rh_{1-x}M_x)_2$ Si_2 solid solutions with M = Co, Ru

D. F. Mariani, J. Vignolo and M. Jiménez de Castro — 471 Thermal annealing of the effect of plastic deformation on the thermoluminescence of KBr

D. Malterre — 475 Influence of density of conduction states on the electronic configuration of cerium

M. I. Alonso, M. Cardona and G. Kanellis — 479 Space groups and lattice dynamics of Ge/Si superlattices grown in the [001] direction

H. Ebert, B. Drittler, R. Zeller and G. Schütz — 485 A first-principles description for the magnetic X-ray dichroism of Pt in Fe

Superconductors and Superconductivity

Y. Tanaka and M. Tsukada — 491 Superconductivity of Kronig – Penny superlattice model

A. G. Gukasov, V. P. Plakhty, O. P. Smirnov and I. A. Zobkalo — 497 Search for magnetic fluctuations in superconducting $La_{1.83}Sr_{0.17}CuO_4$ by polarized neutron scattering

L. Pierre, D. Morin, J. Schneck, J. C. Tolédano, J. Primot, C. Daguet, F. Glas, J. Etrillard and H. Savary — 499 Formation conditions of the (2223) phase in lead-substituted superconducting ceramics Bi – Sr – Ca – Cu – O

A. M. Kini, M. A. Beno, D. Son, H. H. Wang, K. D. Carlson, L. C. Porter, U. Welp, B. A. Vogt, J. M. Williams, D. Jung, M. Evain, M.-H. Whangbo, D. L. Overmyer and J. E. Schirber — 503 $(MDT\text{-}TTF)_2AuI_2$: an ambient pressure organic superconductor (T_c = 4.5 K) based on an unsymmetrical electron donor

O. Eibl — 509 Examination of the crystal structure of high-T_c $Bi_2Sr_2CaCu_2O_{8+\delta}$ by TEM

O. Laborde, J. L. Tholence, P. Monceau, H. Noel, P. Gougeon, J. Padiou, J. C. Levet and M. Potel — 513 Magnetic and resistive determinations of the upper critical field of $YBa_2Cu_3O_{7-\delta}$ single crystals

W. Q. Shen, H. S. Du, J. H. Li, M. L. Dong, X. X. Bai, J. X. Liu, J. L. Shen, G. G. Zheng, J. Q. Zheng and W. Y. Guan — 517 DPAC study of quadrupole interaction in $Y_1Ba_2(Cu_{0.9}Ag_{0.1})_3O_{7-\delta}$

Xia Sike and Ma Ruzhang — 523 Structural variation of $YBa_2Cu_{2.88}Fe_{0.12}O_{7-x}$ oxide superconductor at low temperature

S. Mazumdar — 527 Dopant induced valence transition and fermion pairing in a model of superconducting copper oxides

P. Fischer, J. Karpinski, E. Kaldis, E. Jilek and S. Rusiecki — 531 High pressure preparation and neutron-diffraction study of the high T_c superconductor $YBa_2Cu_4O_{8\pm x}$

Y. Horie and S. Mase — 535 Discontinuity in sound velocity and high T_c superconductivity in $YBa_2Cu_3O_7$

B. A. Richert and R. E. Allen — 539 LaO/BaO/SrO oxygen (*p*)-metal (*d*) excitons as the mechanism of high-temperature superconductivity

Han Guchang, Wang Yugui, Wang Jinsong, Wang Nanlin and Jiao Xinping — 543 Magnetic properties of (Bi · Pb) – Sr – Ca – Cu – O superconductors

H. Niki, T. Suzuki, S. Tomiyoshi, H. Hentona, M. Omori, T. Kajitani, T. Kamiyama and R. Igei — 547 Proton NMR in hydrogen-doped superconductor $YBa_2Cu_3O_{7-\delta}H_{0.2}$

A. D. Wieck, E. Batke, U. Merkt, D. Walker and A. Gold — 553 Evidence for two electronic gaps in polycrystalline $Y_1Ba_2Cu_3O_7$-type compounds

---

General Papers (contd)

E. M. Haines — 561 Self-consistent moments and short-range magnetic order in Ni

A. I. Ekimov, Al. L. Efros, M. G. Ivanov, A. A. Onushchenko and S. K. Shumilov — 565 Donor-like exciton in zero-dimension semiconductor structures

E. Czarnecka-Such, A. Rodzik, A. Kisiel, G. Dalba and P. Fornasini — 569 Reflectivity spectra analysis of the $Sb_{40}S_{60}$ and $Sb_{28}S_{72}$ non-crystalline thin films

W. C. de Oliveira and E. V. Anda — 575 The effect of non-orthogonality and screening on the impurity band of doped semiconductors

H. Gollisch and R. Feder 579 Electronic structure and magnetism of Fe_3Pt near the Curie temperature

J. M. Lopez and M. Silbert 585 Structural diffusion model calculations of the pair distribution function of aluminium: from the liquid to the amorphous phase

A cumulative Author Index appears in Numbers 4, 8 and 12 of each Volume

FEBRUARY VOLUME 69, NUMBER 6 1989

CONTENTS

General Papers

S. S. Lin, Y. S. Huang, C. R. Huang and M. C. Lee 589 Raman investigation of RuS_2

Zhihua Yan, Wenkui Wang, Jingfeng Li and Yuming Wang 595 Formation of amorphous $Fe_{50}Si_{50}$ alloy by diffusion reaction

---

Superconductors and Superconductivity

R. Retoux, C. Michel, M. Hervieu, N. Nguyen and B. Raveau 599 $Bi_2Sr_4Fe_3O_{12-\delta}$, a bismuth iron oxide isostructural with the "2223" superconductor

V. I. Ilyichev, M. A. Savchenko and A. V. Stefanovich 605 High-temperature superconductivity of ceramic systems

Yu. N. Shvachko, D. Z. Khusainov, A. A. Romanyukha and V. V. Ustinov 611 Hysteresis of microwave absorption of hard superconductors in magnetic field

N. J. Wu, K. Xie, L. H. Zhao, Y. Zhou, D. W. Hu, Z. Y. Ran and Z. X. Zhao 615 Photoemission studies of high-T_c superconductor $Ba_2Y_{1-x}Pr_xCu_3O_{7+\delta}$

M. P. Fontana, C. Paracchini, C. Paris De Renzi, P. Podini, F. Licci and F. C. Matacotta 621 Temperature dependence of resistivity in $YBa_2Cu_3O_{7-\delta}$: study of the effect of oxygen content and of paraconductivity

J. E. Gordon, M. L. Tan, R. A. Fisher and N. E. Phillips 625 Specific heat data of high-T_c superconductors: lattice and electronic contributions

W. R. Flavell and R. G. Egdell 631 Observation of electronic Raman scattering in Y_2BaCuO_5

General Papers (contd)

J. González Hernández and R. Tsu 637 Determination of film – substrate microadhesion for crystalline silicon films by Raman scattering

Ching Zhou and Chang-de Gong 641 Surface excitations in anisotropic magnetic superlattices—surface polaritons and spin waves

B. Stepien, C. Jedrzejek and R. E. Allen 647 Dangling-bond resonances and intrinsic Schottky barriers

S. V. Nistor 651 Localisation of the neutral impurity atom in the $M^0(1)$ (M = Ga, In, Tl) laser active center

H.-M. Kagaya, H. Kotoku and T. Soma 655 Lattice vibrational contribution to equation of state for tetrahedral compounds

A. A. Kosyachkov and V. T. Cherepin 659 Energy effects in secondary ion emission of implanted and simultaneously sputtered argon

E. L. Ivchenko, Yu. B. Lyanda-Geller and G. E. Pikus — 663 Circular magnetophotocurrent and spin splitting of band states in optically-inactive crystals

H. Dandache — 667 On the interrelationships between Gruneisen's parameter, shock and isothermal equation of state

R. Girlanda, G. Martino, G. Mondio, P. Perillo and R. Giorgi — 671 XPS and Auger spectra of *N*-methyl 2,3-diphenyl 5-methyl indole ($C_{22}H_{19}N$)

S. Yarlagadda and G. F. Giuliani — 677 Quasiparticle energy and interaction in a normal electron liquid

Rui-qin Zhang — 681 Origin and nature of gap states in *a*-Si : H alloys

D. Mihalache, D. Mazilu and Ruo-Peng Wang — 685 Transverse magnetic polarized nonlinear surface-guided waves in semi-infinite superlattices: the transfer matrix technique

G. K. Wertheim and D. N. E. Buchanan — 689 Crystal field splitting of core levels in β-Sn

K. T. Ramakrishna Reddy and P. Jayarama Reddy — 693 Photoconductive response of laser evaporated $CuGaSe_2$ films

T. Kaneyoshi — 695 A new disordered phase and its physical contents of a mixed Ising system with a random crystal field

M. Kroeker and U. Merkt — 699 Conductivity of inversion layers on InSb in parallel magnetic fields

A. M. Jayannavar — 703 Effect of an electric field on the mobility edge

J. J. del Val, J. Colmenero and C. Lacabanne — 707 Compensation laws and phase segregation in polymer blends

A. Bouhelal and J. P. Albert — 713 A configuration interaction study of multiplets in ZnS:Ni

A cumulative Author Index appears in Numbers 4, 8 and 12 of each Volume

FEBRUARY VOLUME 69, NUMBER 7 1989

CONTENTS

General Papers

B. Williamson, M. Gilmartin, G. Lifante, F. Jaque, B. Henderson and F. Cusso — 717 Luminescence of $(F_2^+)_H$ centres in $NaCl:O_2$ under high intensity F-band excitation

D. Moses — 721 Charge quantum yield and transient transport properties of anthracene and amorphous selenium

G. Bernier, J. Beerens, J. De Boeck, K. Deneffe, C. van Hoof and G. Borghs — 727 Photoconductivity and photoluminescence of GaAs grown on Si by molecular beam epitaxy

N. Malinowski, H. Schaber, T. Bergmann and T. P. Martin — 733 Electronic shell structure in Na – O clusters

Superconductors and Superconductivity

J. Darriet, A. Le Lirzin, E. Marquestaut, B. Lepine, B. Chevalier and J. Etourneau — 739 New series of compounds $Bi_2ALaCuO_{6.5}$ (A = Ca, Sr or Ba) isostructural to the superconducting phase $Bi_2Sr_2CuO_6$

V. N. Denisov, B. N. Mavrin, V. B. Podobedov, V. N. Bagratashvily, V. N. Burimov, V. B. Ginodman, L. N. Zherikhina, A. N. Zherikhin, M. M. Rodin, A. P. Sviridov, S. I. Tsypina and A. M. Tskhovrebov — 743 Diagnostics of the high temperature superconducting $YBa_2Cu_3O_x$ films by Raman spectroscopy

V. A. Moskalenko, M. E. Palistrant, V. M. Vackaluk and I. V. Padure — 747 The influence of oxygen disorder on high-T_c superconductivity in two-band model

General Papers (contd)

L. Artus, J. Pascual, A. Goullet and J. Camassel — 753 Polarized infrared spectra of $AgGaSe_2$

D. G. Seiler, M. R. Loloee, S. A. Milazzo, A. J. Durkin and C. L. Littler — 757 New laser-based magneto-optical studies of $Hg_{1-x}Cd_xTe$ alloys

M. I. Auslender and N. G. Bebenin — 761 On the band structure and anisotropy of transport properties of ferromagnetic semiconductors $CdCr_2Se_4$ and $HgCr_2Se_4$

H. L. Park, H. K. Kim, C. H. Chung, S. K. Chang and Jiang-Tsu Yu — 765 Valence state of europium in CaS:Eu phosphor

A. Seidel, C. A. Majid and G. Linker — 769 Formation mechanisms of amorphous clusters in Mn^+ implanted thin Al films

M. Sommer, K. Mui and F. W. Smith — 775 Thermodynamic analysis of the chemical vapor deposition of diamond films

J. T. T. Kumaran and C. Bansal — 779 A Mössbauer effect investigation of Fe hyperfine fields in $Fe_{3-x}Mn_xSi$ alloys

N. Ohno, S. Hashimoto and M. Itoh — 785 Observation of longitudinal excitons in uniaxially-strained RbI and KI crystals

Yu V. Korostelin, P. V. Shapkin, L. G. Suslina, A. G. Areshkin, L. S. Markov and D. L. Fedorov — 789 Localized exciton luminescence in $Zn_xCd_{1-x}Se$ solid solutions

Z. Kąkol, R. N. Pribble and J. M. Honig — 793 Magnetocrystalline anisotropy of $Fe_{3(1-\delta)}O_4$, $0 \leqslant \delta < 0.01$

A cumulative Author Index appears in Numbers 4, 8 and 12 of each Volume

FEBRUARY VOLUME 69, NUMBER 8 1989

CONTENTS

General Papers

W. Figueiredo and J. A. Plascak — 797 Critical properties of two-component spin-1/2 ferromagnetic superlattices

R. Krishnan and H. Lassri — 803 High field magnetization studies in amorphous Co – Er – B alloys

J. C. van den Heuvel, R. C. van Oort and M. J. Geerts — 807 Diffusion length measurements of thin amorphous silicon layers

Y. Takagaki, K. Gamo, S. Namba, S. Takaoka, K. Murase, S. Ishida, K. Ishibashi and Y. Aoyagi — 811 Nonlocal voltage fluctuations in a quasi ballistic electron waveguide

N. Frangis, S. Kuypers, C. Manolikas, J. Van Landuyt and S. Amelinckx — 817 Continuous series of one-dimensional structures in the compounds $Bi_{2+x}Se_3$, $Bi_{2+x}Te_3$, $Sb_{2+x}Te_3$, $(Bi_2Te_3)_nGeTe$ and $(Sb_2Te_3)_nGeTe$

F. W. Wise and C. L. Tang — 821 Subpicosecond luminescence study of hot-electron relaxation in GaAs quantum wells

Superconductors and Superconductivity

X. Z. Wang, K. Donnelly, T. Bakas, J. M. D. Coey, I. Rosenman and C. Simon — 829 Production and characterisation of single crystal, superconducting $Bi_2Sr_2CaCu_2O_x$

X.-D. Xiang, M. Chung, J. W. Brill, S. Hoen, P. Pinsukanjana and A. Zettl — 833 Elastic properties of single crystal $Bi_2Sr_2CaCu_2O_8$

T. A. Costi — 837 Pairing correlations and susceptibilities of the one-dimensional Hubbard model

D. Schweitzer, S. Gärtner, H. Grimm, E. Gogu and H. J. Keller — 843 Superconductivity in polycrystalline pressed samples of organic metals

A. K. Rajagopal, S. D. Mahanti and W. Jin — 847 Neutron scattering as a probe of superconducting correlations in the new high T_c superconductors

M. Sera, Y. Ando, S. Kondoh, K. Fukuda, M. Sato, I. Watanabe, S. Nakashima and K. Kumagai — 851 Transport and magnetic anomalies at the structural transition to the new low temperature phase in $La_{2-x}Ba_xCuO_4$

C. Thomsen, M. Cardona, R. Liu, Hj. Mattausch, W. König, F. García-Alvarado, B. Suárez, E. Morán and M. Alario-Franco — 857 $Pb_2Sr_2R_{1-x}Ca_xCu_3O_{8+\delta}$: Raman and far infrared investigation

Liu Hongbao, Cao Liezhao, Zhou Ling, Mao Zhiqiang, Li Xiaoxian, Yu Zhidong, Xue Bai, Mao Xianglei, Zhou Guien, Run Yaozhong, Chen Zhaojia and Zhang Yuheng — 867 Zero resistance at 132K in the multiphase system of $Bi_{1.9-x}Pb_xSb_{0.1}Sr_2Ca_2Cu_3O_y$ with $x = 0.3, 0.4$

i Author Index Nos 1 – 8

A cumulative Author Index appears in Numbers 4, 8 and 12 of each Volume

MARCH VOLUME 69, NUMBER 9 1989

CONTENTS

General Papers

T. Ito, A. Taguchi and T. Ohno — 869 Band structures of Ga – Ge – As – Ge and In – Ge – As – Ge superlattices

Young-Sea Huang and V. Murgai — 873 Photoemission study of Cu – Yb thin films

V. V. Aleksandrov, T. S. Velichkina, V. I. Voronkova, L. V. Koltsova, I. A. Yakovlev and V. K. Yanovskii — 877 Elastic coefficients of $KTiOPO_4$, $RbTiOPO_4$, $TlTiOPO_4$ crystals determined from Mandelstamm – Brillouin light scattering spectra

S. Magazu', G. Maisano, D. Majolino, F. Mallamace, F. Aliotta and N. Micali — 883 Evidence of large cluster aggregates in potassium oleate microemulsion by elastic light scattering measurements

M. Rinker, H.-E. Swoboda, F. A. Majumder and C. Klingshirn — 887 Diffusive and thermal properties of the electron-hole plasma in CdS and CdSe

U. Frank, A. Brandl and W. Prettl 891 Far-infrared radiation controlled chaos in *n*-GaAs

U. Schneider and B. Schröder 895 A semiquantitative model for the creation kinetics of metastable defects in *a* – Si:H by keV-electron irradiation

E. Friess, H. Brugger, K. Eberl, G. Krötz and G. Abstreiter 899 Confined optical modes in short period (110) Si/Ge superlattices

Superconductors and Superconductivity

F. Chibane, N. Bonnel de Longchamp, R. Martin, J. Perrière, G. Hauchecorne, F. Kerhervé and J. P. Maneval 907 Optical pulse detection by BiSrCaCuO granular films

H. D. Jostarndt, M. Galffy, A. Freimuth and D. Wohlleben 911 Unstable high temperature superconductivity and martensitic effects in YBaCuO

B. H. Brandow 915 Valence fluctuations with finite U: a mechanism for high-temperature superconductivity

I. T. Belash, A. D. Bronnikov, O. V. Zharikov and A. V. Pal'nichenko 921 Superconductivity of graphite intercalation compound with lithium C_2Li

D. S. McLachlan 925 Morphology dependence of the resistivity and Meissner curves in two-phase superconductors

General Papers (contd)

T. Ishihara, J. Takahashi and T. Goto 933 Exciton state in two-dimensional perovskite semiconductor $(C_{10}H_{21}NH_3)_2PbI_4$

V. M. Shatalov and O. F. Panchenko 937 Effect of electron band structure on energy distribution of secondaries in silicon

A. W. Sheikh 941 Specific heat of NM – TM spin glasses

Zhang Yu-Xin, Du Mao-Lu and Li Yong-Tai 945 A theoretical approach of pressure dependence of zero-field splitting of Cr^{3+} ion in ammonium aluminum alum

A cumulative Author Index appears in Numbers 4, 8 and 12 of each Volume

MARCH VOLUME 69, NUMBER 10 1989

CONTENTS

General Papers

i Editorial—Congratulations to Manuel Cardona

M. Raghu, S. V. Subramanyam and S. Chatterjee 949 Pressure induced incommensurate to commensurate transition in $K_3Cu_8S_6$

V. Fiorentini and A. Baldereschi 953 Interpretation of double acceptor spectra in Ge

T. Hayashi and M. Watanabe 959 Surface evanescent layer for an exciton polariton of PbI_2 estimated from the analysis of reflection spectra

C. Dufour, A. Bruson, B. George, G. Marchal, Ph. Mangin, C. Vettier, J. J. Rhyne and R. Erwin 963 Polarized neutron study of Fe/Si multilayers

J. Holm and K. Schönhammer 969 Generalized slave – boson treatment of double occupancy of the *f*-orbital in the single impurity Anderson model

Y. M. Kim, G. Mihály and G. Grüner — 975 Onset of the charge-density wave conduction at low temperatures in $K_{0.3}MoO_3$

Superconductors and Superconductivity

Zhou Xianyi, Liu Zhiguo, Zhu Yuping, Chen Guanghui, Chen Yong, Zhang Qirui and Guan Weiyan — 981 Experimental verification of superconducting phase separation model in metallic glass $Zr_{78}Co_{22}$

J. E. Hirsch and S. Tang — 987 Hole superconductivity in oxides

T. Onogi, T. Ichiguchi and T. Aida — 991 Power-law dissipative behavior in high-T_c superconductor

W. Urland and F. Tietz — 995 Dependence of T_c on hole concentration in $Bi_2Sr_{3-x}Ca_xCu_2O_{8+\delta}$ superconductors

M. Avignon and K. H. Bennemann — 999 On the role of holes in the p – d anti-bonding band of CuO_2 planes for high-T_c-superconductivity

General Papers (contd)

E. Gratz, E. Bauer, H. Nowotny, A. T. Burkov and M. V. Vedernikov — 1007 Temperature dependence of the electrical resistivity of $REFe_2$ compounds

A cumulative Author Index appears in Numbers 4, 8 and 12 of each Volume

MARCH VOLUME 69, NUMBER 11 1989

CONTENTS

General Papers

Zhao Zhibo, Xia Sike, Ma Ruzhang, Ping Jueyun, Miao Baihe and Pan Shuming — 1011 The orientation anomaly in EDPs of the $Nd_{1+\epsilon}Fe_4B_4$ compound

D. Chauveau, C. Guillot, B. Villette, J. Lecante, M. C. Desjonquères, D. Sébilleau, D. Spanjaard and G. Tréglia — 1015 Photoelectron diffraction study of the unreconstructed and the hydrogen reconstructed W(110) surfaces

C. Hirlimann, J.-F. Morhange and A. Chevy — 1019 Excitonic resonant second harmonic in GaSe

A. Jezierski — 1023 Density of states in $Ni_{80}B_{20(1-x)}P_{20x}$ amorphous alloys

M. Ribault and J. Joffrin — 1031 Magnetoresistance effects in single crystal La_2CuO_{4-y}

A. Testa, W. Czaja, A. Quattropani and P. Schwendimann — 1035 Screening effects in highly concentrated bound excitons in semiconductors

Songhua Chen and D. C. Ailion — 1041 ^{35}Cl NQR spin-lattice relaxation study and phason gap determination in the incommensurate system Rb_2ZnCl_4

H. J. M. Swagten, F. A. Arnouts, A. Twardowski, W. J. M. de Jonge and A. Mycielski — 1047 Magnetic specific heat of the diluted magnetic semiconductor $Hg_{1-x}Fe_xSe$

E. P. Skipetrov — 1053 Metal – insulator transition induced by electron irradiation in n-$Pb_{1-x}Sn_xSe(x = 0.25)$ alloy

Ji-Wei Wu — 1057 Binding energies of Wannier excitons in semiconductor quantum wells: numerical integration of the in-plane radial equation

Superconductors and Superconductivity

C. E. Hamrin, Jr., W. D. Arnett, R. J. De Angelis, X. X. Ding and W. D. Ehmann — 1063 Starting materials and superconductor stoichiometry

Su Zhen-peng, Zhao Yong, Sun Shi-fang, Chen Zu-yao, Chen Xian-hui and Zhang Qi-rui — 1067 Effects of Ag doping on the critical current density of $YBa_2Cu_3O_{7-y}$

X. Granados, M. Carrera, J. Fontcuberta, M. Vallet and J. M. González-Calbet — 1073 On the effects of helium absorption on the superconducting onset of $YBa_2Cu_3O_{7-y}$

J. W. Chen and C. F. Chen — 1079 Superconductivity in $(Y_{1-x}M_x)$ $Ba_2Cu_3O_{7-\delta}$ (M = Cd and Zn) systems

B. Domengès, M. Hervieu and B. Raveau — 1085 The 50K – superconductor $TlBa_2CaCu_2O_7$: HREM study

J. Darriet, C. J. P. Soethout, B. Chevalier and J. Etourneau — 1093 Superconducting phases in the series $Bi_2Sr_{2-x}La_xCuO_{6+d}$ $(0<x<1)$

L. Forro, M. Raki, J. Y. Henry and C. Ayache — 1097 Hall effect and thermoelectric power of an $YBa_2Cu_3O_{6.8}$ single crystal

R. K. Nesbet — 1103 Spin-flip pairing in CuO_2 superconductors

---

General Papers (contd)

K. K. Tewari, S. D. Pandey and P. Chand — 1109 Identification of Suzuki-phase in $CsCl:Eu^{2+}$, Mn^{2+} crystals

A. Gordon — 1113 Conductivity by ionic defects in hydrogen-bonded chains

M. Kucera, J. Bok and K. Nitsch — 1117 Faraday rotation and MCD in Ce doped YIG

A cumulative Author Index appears in Numbers 4, 8 and 12 of each Volume

MARCH VOLUME 69, NUMBER 12 1989

CONTENTS

General Papers

K. A. Mäder, A. Baldereschi and H. von Känel — 1123 Band structure and instability of $Ge_{1-x}Sn_x$ alloys

H.-P. Werner, J. U. von Schütz, H. C. Wolf, R. K. Kremer, M. Gehrke, A. Aumüller, P. Erk and S. Hünig — 1127 Spin-Peierls transition in (2,5-dichloro-N,N′-dicyanoquinonediimine)$_2$N$(CH_3)_4$

M.-H. Tsai, J. D. Dow, R. V. Kasowski, A. Wall and A. Franciosi — 1131 Explanation of anomalous Curie constants of $Cd_{1-x}Mn_xTe$ alloys

P. Baumgart, S. Blumenröder, A. Erle, B. Hillebrands, G. Güntherodt and H. Schmidt — 1135 Sound velocities of $YBa_2Cu_3O_{7-\delta}$ single crystals measured by Brillouin spectroscopy

T. W. Steiner, A. G. Steele, S. Charbonneau, M. L. W. Thewalt, E. S. Koteles and B. Elman — 1139 Time-resolved studies of biexcitons in GaAs

---

Superconductors and Superconductivity

Wang Ke-qin, Chen Zhao-jia, Xia Jian-sheng, Chen Zuyao and Zhang Qirui — 1145 Two transitions in single crystal $GdBa_2Cu_3O_{7-y}$ near T_c

V. A. Gasparov, R. Huguenin, D. Pavuna and J. van der Maas — 1147 Radio frequency penetration depth in HTSC ceramic samples

Y. Yamaguchi, S. Waki and M. Tokumoto 1153 Magnetic properties of tetragonal $YBa_2Cu_3O_{6+x}$: susceptibility with ferromagnetic Weiss-constant

M. Pasternak and R. D. Taylor 1157 Quenching of magnetic fluctuations around ^{119}Sn impurities in superconducting $GdBa_2(Cu_{0.99}Sn_{0.01})_3O_7$

M. Saint-Paul, J. L. Tholence, H. Noël, J. C. Levet, M. Potel and P. Gougeon 1161 Ultrasound study on $YBa_2Cu_3O_{7-\delta}$ and $GdBa_2Cu_3O_{7-\delta}$ single crystals

R. B. Tripathi, S. Singh, S. M. Khullar, B. S. Khurana, R. K. Kotnala, K. Jain, B. V. Reddi, R. C. Goel, K. C. Nagpal, S. Singhal and B. K. Das 1165 Non-superconducting phase stability in $YBa_2Cu_3O_{7-x}$ compound

T. Osada and N. Miura 1169 Edge states of anisotropic two-dimensional Bloch electron system under magnetic fields

K. N. Shrivastava 1173 Theory of phonon-induced charge transfer and hybridization in high temperature superconductivity

S. Kagoshima, Y. Nogami, M. Hasumi, H. Anzai, M. Tokumoto, G. Saito and N. Mori 1177 A change of the superstructure and an associated rise of the superconducting critical temperature in the organic superconductor β-(BEDT-FFT)$_2I_3$

General Papers (contd)

A. Cantarero, C. Trallero-Giner and M. Cardona 1183 Excitons in one-phonon resonant Raman scattering: GaP

Y. Luspin and G. Hauret 1187 Brillouin scattering in $(NH_4)_2ZnCl_4$ near the lock-in transition

N. Sato, M. Mori, K. Ichikawa and T. Matsukawa 1191 Resonant photoemission in Ce_2Zn_{17} with stable trivalent valence

Hong-Suk Youn, Yong-Geun Kim, Hyung-Gon Kim, Wah-Tek Kim and Sook-Il Kwun 1195 Impurity optical absorption of SbSI:Ni single crystals

J. C. Hansen, J. A. Benson, M. K. Wagner and J. G. Tobin 1197 The electronic structure of 2×1-Au(1 1 0)

S. Pal, S. D. Pandey and P. Chand 1203 Electrical studies in some alkali titanates

1207 Author Index Nos 1 – 12

i Calendar of Solid State Events

A cumulative Author Index appears in Numbers 4, 8 and 12 of each Volume